January 1, 2014

Actuarial Valuation Report

Northampton Retirement Board

Lawrence B. Stone

stoneconsulting,inc

5 West Mill Street, Suite 4
Medfield, Massachusetts 02052
T: 508.359.9600 • F: 508.359.0190
Lstone@stoneconsult.com

October 17, 2014

Northampton Retirement Board
City Hall
Room 3
Northampton, MA 02180

Dear Northampton Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2014 actuarial valuation of the Northampton Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices and meets the parameters set by the Governmental Accounting Standards Board Statement (GASB) No. 27. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the Northampton Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

We anticipate over time the contribution level to decrease as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The length of the funding schedule contained in this actuarial valuation report is twenty-one years (fully funded by 2036) and the amortization increase is 3.77%. The amortization increase cannot exceed 4.00% annually. The maximum length of the amortization period is until Fiscal 2040. These limits are contained in Section 22F of Chapter 32 of the Massachusetts General Laws.

The contribution amount for Fiscal Year 2016 is $5,415,093 which is $198,000 more than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Northampton Retirement Board conducted their previous actuarial valuation effective January 1, 2012.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

I, Lawrence Stone, am a consultant for Stone Consulting, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan

Lawrence B. Stone
Member, American Academy of Actuaries

TABLE OF CONTENTS

Introduction

This report presents the results of the actuarial valuation of the Northampton Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2014 for the purpose of determining the contribution requirements for Fiscal Year 2016 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2013
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2014);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

January 1, 2014 Valuation Summary

	January 1, 2014	January 1, 2012	Change
Contribution Fiscal 2016	$5,415,093	$5,217,280	$197,813
Funding Schedule Length	21 years	21 years	0 years
Amortization Increase	3.77%	3.77%	0.00%
Funding Ratio	63%	61%	3%
Interest Rate Assumption	7.75%	7.75%	0.00%
Salary Increase Rate Assumption	4%* base rate plus 3% steps first 8 years of employment, Base rate is .50% lower when steps are applicable (Approximately 4.50%)	4%* base rate plus 3% steps first 8 years of employment, (Approximately 4.50%)	

*percentage lowered by 2% for 2014 through 2015
**percentage lowered by 2% for 2012 through 2014

- The Fiscal Year 2016 contribution is $197,813 more than the planned 2016 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a four-year asset smoothing method. In this approach, asset gains and losses are recognized over a four-year period. The purpose of this approach is to avoid wide swings in asset value from one year to the next.

- The System, over the two-year period from January 1, 2012 through December 31, 2013, experienced a 13.7% annual return on the market value of assets versus our assumption of 7.75%. There was about a $8,700,000 net actuarial gain in calendar year 2013 and a $2,300,000 net actuarial gain in calendar year 2012. The annual return on the actuarial value of assets (AVA) was 10.5% over the same two-year period. The System's asset portfolio, effective December 31, 2013 is approximately 70% equities, pooled alternative investments and hedge funds and 30% fixed income and short-term investments. The asset allocation is relatively fluid when compared to many other Chapter 32 systems. The interest rate assumption was maintained at 7.75% to reflect anticipated future market performance.

- The salary increase assumption was changed from the prior valuation. We used a select and ultimate table with a 4.00% base rate with 3.00% steps for 8 years. The base rate is lowered by .50% for years when steps are applicable since the base rate includes potential promotions and related step increases. The base rate is further adjusted for the 2014 and 2015 to 2.00%. This change increased the accrued liability by $137,000. This assumption is based on expected future experience. Total compensation changed by 0.7% over the prior valuation; however average annual compensation (compensation divided by number of active members) changed by 4.1%.

- The funding level of the Northampton Retirement System is 63% compared to 61% for the January 1, 2012 actuarial valuation. The funded ratio using the market value of assets is 68%. Chapter 68 requires a minimum funding ratio of 65% along with additional criteria in order to avoid being labeled an "underperforming system". If you are considered an "underperforming system" the system assets are required to be transferred to PRIT. Northampton Retirement System is not an underperforming system. The funding level is estimated to be in the top half of Massachusetts' Contributory Retirement Systems.

- The schedule length twenty-one (21) years, a length consistent with the 21 years remaining from the 23 year schedule from the prior valuation. The maximum period permitted under Section 22F of Chapter 32 of the Massachusetts General Laws is 25 years (Fiscal 2040). The amortization percentage is 3.77% which is the same as last year. This schedule resulted in a $197,813 increase as compared to the expected FY 2016 contribution level from the prior valuation.

- Non-economic assumptions were changed from the January 1, 2012 actuarial valuation. The mortality assumption is based upon the RP2000 mortality projected using generational mortality and Scale BB. The previous assumption used the RP2000 Table projected 17 years with Scale AA. The net effect of this change increased the accrued liability by $8.1 million. This increased the unfunded AAL by over 17%.

January 1, 2014 Actuarial Valuation Results

	January 1, 2014	January 1, 2012	Percentage Change
Funding			
Contribution for Fiscal 2016	$5,415,093		
Contribution for Fiscal 2016 based on current schedule		$5,217,280	4%
Members *			
▪ Actives			
a. Number	604	624	-3.2%
b. Annual Compensation	$24,064,230	$23,888,793	0.7%
c. Average Annual Compensation	$39,841	$38,283	4.1%
d. Average Attained Age	46.8	46.7	0.2%
e. Average Past Service	11.5	11.4	1.0%
▪ Retired, Disabled and Beneficiaries			
a. Number	392	363	8.0%
b. Total Benefits*	$8,211,667	$7,130,255	15.2%
c. Average Benefits*	$20,948	$19,643	6.6%
d. Average Age	71.1	70.4	0.9%
▪ Inactives			
a. Number	184	161	14.3%
Normal Cost			
a. Total Normal Cost as of January 1, 2014	$3,204,759	$3,061,037	4.7%
b. Less Expected Members' Contributions	2,127,234	2,095,941	1.5%
c. Normal Cost to be funded by the Municipality (a. – b.)	$1,077,525	$965,096	11.6%
d. Adjustment to July 1, 2015	73,545	65,871	11.6%
e. Administrative Expense Assumption	211,028	207,144	1.9%
f. Normal Cost Adjusted to July 1, 2015 (c.+d.+e.)	$1,362,098	$1,238,111	10.0%
Actuarial Accrued Liability as of January 1, 2014			
a. Active Members	$63,414,242	$58,676,990	8.1%
b. Inactive Members	1,436,207	1,206,355	19.1%
c. Retired Members and Beneficiaries	84,170,369	71,504,454	17.7%
d. Total (a.+b.+c.)	$149,020,818	$131,387,799	13.4%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2014	$149,020,818	$131,387,799	13.4%
b. Less Actuarial Value of Assets as of January 1, 2014	93,943,208	79,531,350	18.1%
c. Unfunded Actuarial Accrued Liability as of January 1, 2014 (a. - b.)	$55,077,610	$51,856,449	6.2%
d. Adjustment to July 1, 2015	3,174,484	3,054,550	
e. Unfunded Actuarial Accrued Liability as of July 1, 2015 (c. + d.)	$58,252,094	$54,910,999	

*Excluding State reimbursed COLA

Demographic Information

	January 1, 2014	Percentage Change
Members		
Actives		
a. Number	604	-3.2%
b. Annual Compensation	$24,064,230	0.7%
c. Average Annual Compensation	$39,841	4.1%
d. Average Attained Age	46.8	0.2%
e. Average Past Service	11.5	1.0%
Retired, Disabled and Beneficiaries		
a. Number	392	8.0%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	$8,211,667	15.2%
Inactives		
a. Number	184	14.3%

- The data was supplied by the Northampton Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Northampton Retirement Board, we were able to develop a database sufficient for valuation purposes.

History of Active Participants

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2014	604	46.8	11.5	$39,841
2012	624	46.7	11.4	$38,283
2010	602	47.0	11.4	$37,468
2008	626	45.9	10.7	$34,750
2007	603	46.0	10.8	$33,724
2005	578	45.3	10.4	$31,350
2003	615	45.8	10.6	$29,635
2000	580	45.4	10.6	$27,298
1998	544	45.5	10.3	$25,784

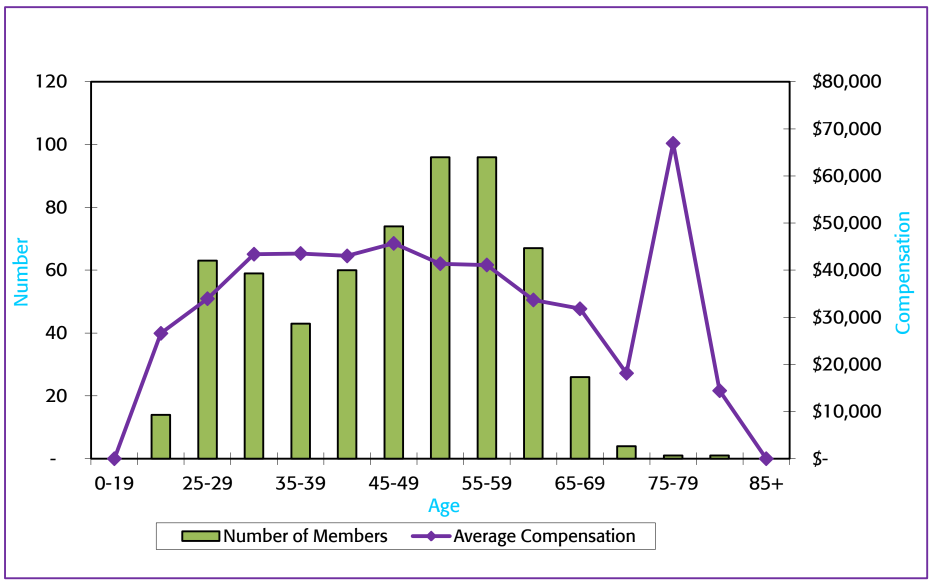
- Employee age has increased by 1.3 years and service has increased by 1.2 years over the course of the past sixteen years. This is consistent with the general aging of the workforce in the Massachusetts public sector. Average annual compensation has grown by 54.5% (2.8% annually) over the same time period.

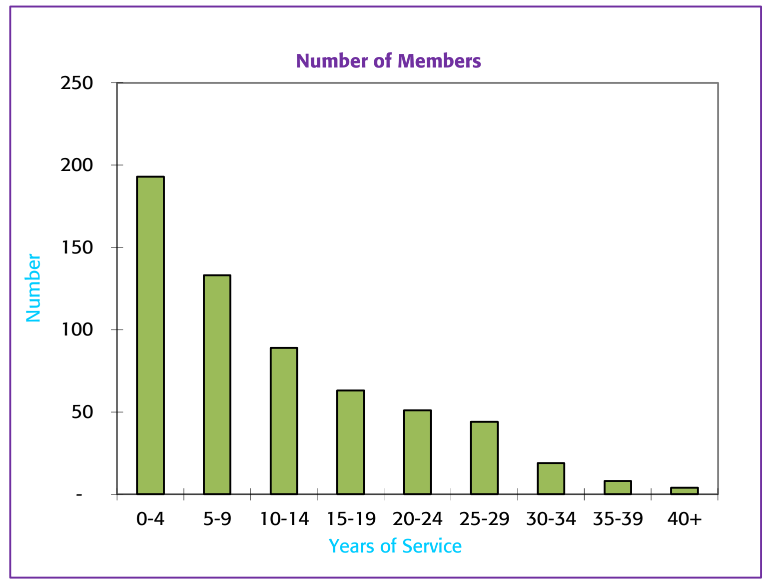
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2014

Active Members

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	14	-	-	-	-	-	-	-	-	14	372,389	26,599
25-29	53	10	-	-	-	-	-	-	-	63	2,139,148	33,955
30-34	21	32	6	-	-	-	-	-	-	59	2,560,362	43,396
35-39	18	7	13	4	1	-	-	-	-	43	1,872,551	43,548
40-44	18	9	13	14	5	1	-	-	-	60	2,581,743	43,029
45-49	13	22	8	10	14	7	-	-	-	74	3,380,844	45,687
50-54	21	20	15	13	8	12	6	1	-	96	3,972,267	41,378
55-59	20	16	16	10	8	15	7	4	-	96	3,946,940	41,114
60-64	12	13	8	8	11	7	2	3	3	67	2,256,898	33,685
65-69	2	4	8	3	4	2	3	-	-	26	827,195	31,815
70-74	1	-	2	1	-	-	-	-	-	4	72,540	18,135
75-79	-	-	-	-	-	-	-	-	1	1	66,925	66,925
80-84	-	-	-	-	-	-	1	-	-	1	14,430	14,430
85+	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	193	133	89	63	51	44	19	8	4	604	$ 24,064,230	$ 39,841





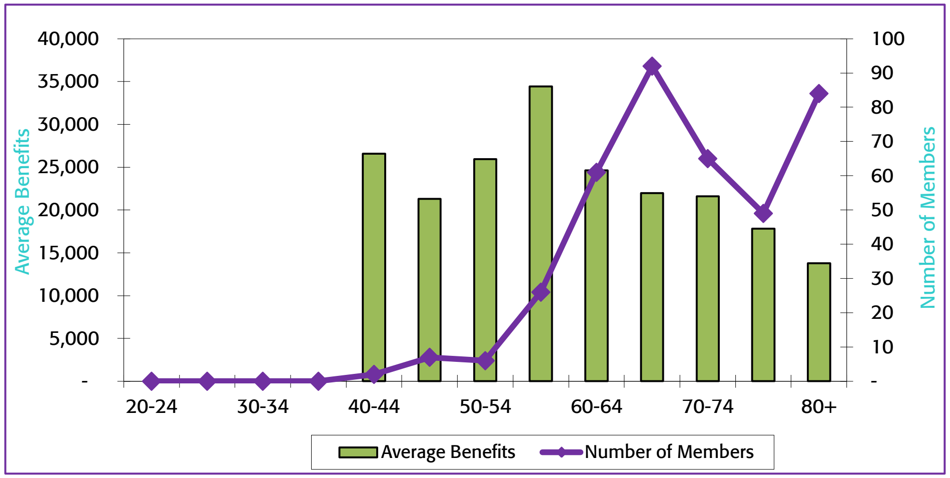
Distribution of Plan Members as of January 1, 2014

Retired Members

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	13,285	13,285
45-49	4	21,809	87,234
50-54	2	16,643	33,286
55-59	21	33,141	695,965
60-64	55	23,650	1,300,765
65-69	81	21,187	1,716,120
70-74	57	21,474	1,224,010
75-79	47	17,855	839,203
80+	83	13,762	1,142,234
TOTAL	**351**	**$ 20,091**	**$ 7,052,102**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	39,849	39,849
45-49	3	20,625	61,874
50-54	4	30,559	122,234
55-59	5	39,857	199,285
60-64	6	33,486	200,915
65-69	11	27,793	305,718
70-74	8	22,365	178,920
75-79	2	17,180	34,361
80+	1	16,408	16,408
TOTAL	**41**	**$ 28,282**	**$ 1,159,564**

Total			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	2	26,567	53,134
45-49	7	21,301	149,109
50-54	6	25,920	155,520
55-59	26	34,433	895,250
60-64	61	24,618	1,501,680
65-69	92	21,976	2,021,837
70-74	65	21,584	1,402,931
75-79	49	17,828	873,563
80+	84	13,793	1,158,642
TOTAL	**392**	**$ 20,948**	**$ 8,211,667**



Benefits shown are net of State reimbursed COLA.

stoneconsulting,inc

Valuation Methodology

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

	January 1, 2014	% of Payroll*
Gross Normal Cost (GNC)	$3,204,759	13.3%
Employees Contribution	$2,127,234	8.8%
Net Normal Cost (NNC)	$1,077,525	4.5%
Adjusted to Beginning of Fiscal Year 2016	$73,545	
Administrative Expense	$211,028	0.9%
Adjusted Net Normal Cost With Admin. Expense	$1,362,098	

*Payroll paid in 2013 for employees as of January 1, 2014 is $24,064,230. Payroll for new hires in 2013 was annualized.

- The gross normal cost (GNC) is the "price" of benefits accruing in the current year if the assumptions underlying the normal cost were realized.

- An individual normal cost represents that part of the cost of a member's future benefits that are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and withdrawals) are included in this calculation.

- Anticipated employee contributions to be made during the year are subtracted from the GNC to determine employer normal cost, or net normal cost (NNC).

- Administrative expenses added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

Actuarial Accrued Liability and Funded Status

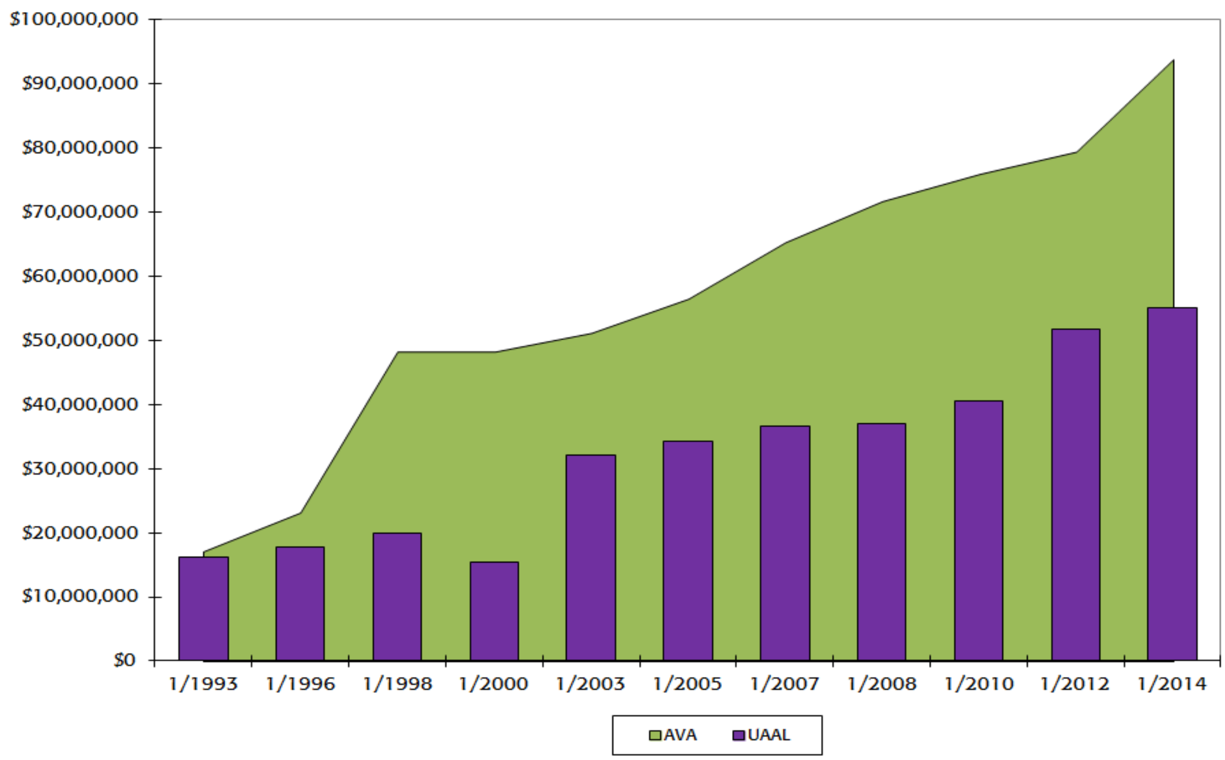
			January 1, 2014	Percentage Change
Active Actuarial Accrued Liability		$	63,414,242	8.1%
Superannuation	$ 57,582,980			
Death	$ 1,427,245			
Disability	$ 3,706,729			
Withdrawal	$ 697,288			
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability		$	85,606,576	17.7%
Retirees and Beneficiaries	$ 70,609,598			
Disabled	$ 13,560,771			
Inactive	$ 1,436,207			
Total Actuarial Accrued Liability (AAL)		$	149,020,818	13.4%
Actuarial Value of Assets (AVA)		$	93,943,208	18.1%
Unfunded Actuarial Accrued Liability		$	55,077,610	6.2%
Funded Ratio (AVA / AAL)				
2014 (7.75% interest rate):	63%			
2012 (7.75% interest rate):	61%			

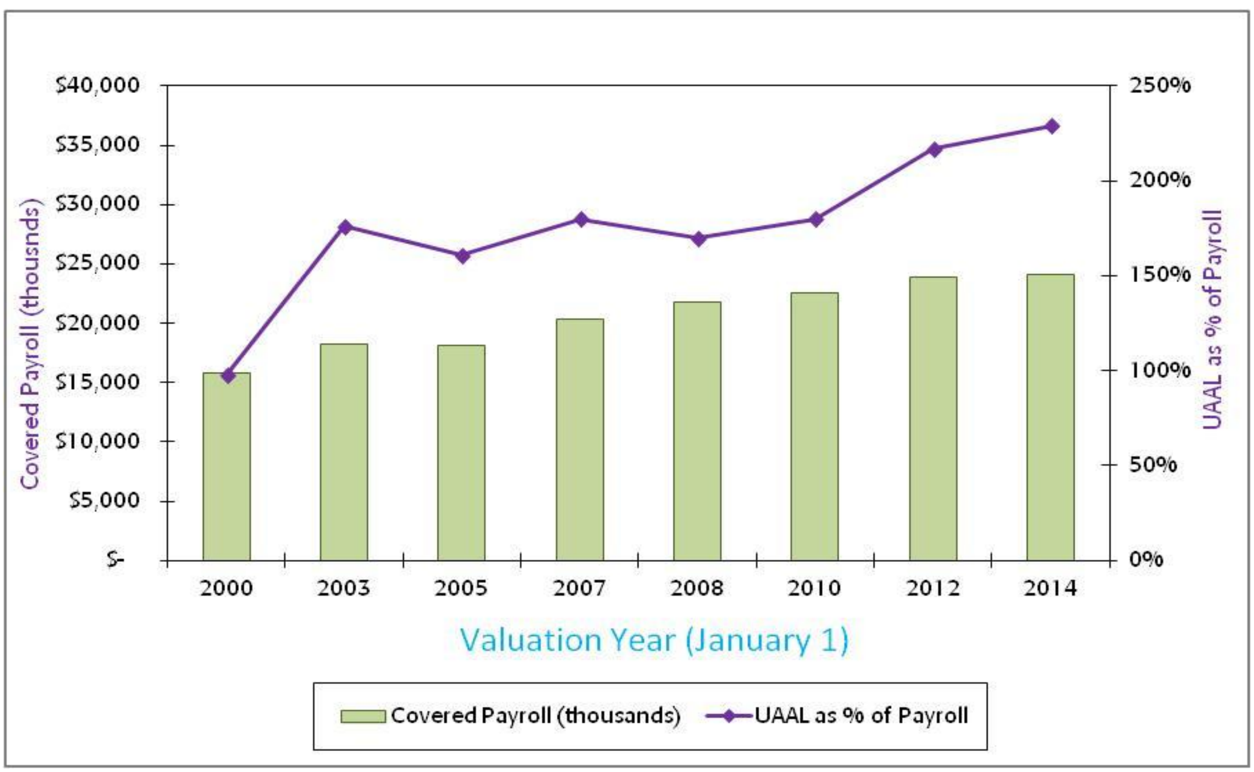
- Actuarial Accrued Liability (AAL) is the “price” of benefits attributable to benefits earned in past years, or in other words, represents today’s value of all benefits earned by active and inactive members.

- The total AAL is $149,020,818. This along with an actuarial value of assets of $93,943,208 produces a funded status of 63%. This compares to a funded status of 61% for the 2012 valuation. The funded status using market value of assets is 68%.

The chart on the following page is a history of the unfunded actuarial accrued liability (UAAL) and the valuation assets (AVA) over the course of the past eleven actuarial valuations.

History of Actuarial Valuation of Assets (AVA) and Unfunded Actuarial Accrued Liability (UAAL)





stoneconsulting,inc

Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2016 (including admin. expenses)	$1,362,098
Net 3(8)(c) Payments	$ 43,886
Amortization	$4,009,109
Total Appropriation required for Fiscal 2016	$5,415,093

- The funding schedule is composed of the normal cost, the net 3(8)(c) payments and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made on July 1. The 3(8)(c) payments are the amount that the Northampton Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system. The net 3(8)(c) payments is the difference between what the Northampton Retirement System paid out minus what was received by the System.

- The contribution amount for Fiscal 2016 is $5,415,093. The funding schedule is presented on page 11. The schedule's length is eight (21) years (for the fresh start base) which is the remainder of the 23 year schedule from the January 1, 2012 valuation. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-five years to Fiscal 2040.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (UAAL), other than the UAAL due to past early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach can result in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization percentage of 3.77% is the same as used in the January 1, 2012 valuation. The maximum amortization increase allowed under Section 22F of Chapter 32 is 4.00%.

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability*	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution
2016	1,362,098	58,252,094	4,009,109	43,886	5,415,093
2017	1,423,392	58,446,816	4,162,207	43,886	5,629,486
2018	1,487,445	53,895,390	3,988,832	43,886	5,520,164
2019	1,554,380	53,774,315	4,141,346	43,886	5,739,613
2020	1,624,327	51,308,673	4,130,043	43,886	5,798,257
2021	1,697,422	50,834,974	4,288,077	43,886	6,029,385
2022	1,773,806	50,154,281	4,452,174	43,886	6,269,866
2023	1,853,627	49,244,021	4,622,567	43,886	6,520,080
2024	1,937,040	48,079,617	4,799,498	43,886	6,780,425
2025	2,024,207	46,634,328	4,983,219	43,886	7,051,313
2026	2,115,297	44,879,070	5,173,992	43,886	7,333,175
2027	2,210,485	42,782,221	5,372,088	43,886	7,626,459
2028	2,309,957	40,309,419	5,577,788	43,886	7,931,631
2029	2,413,905	37,423,332	5,316,771	43,886	7,774,562
2030	2,522,530	34,594,819	5,517,213	43,886	8,083,630
2031	2,636,044	31,331,121	5,725,212	43,886	8,405,143
2032	2,754,666	27,590,367	5,941,053	43,886	8,739,605
2033	2,878,626	23,327,136	6,165,030	43,886	9,087,543
2034	3,008,165	18,492,169	6,397,452	43,886	9,449,503
2035	3,143,532	13,032,058	6,638,636	43,886	9,826,054
2036	3,284,991	6,888,912	6,888,912	43,886	10,217,790
2037	3,432,815	-	-	43,886	3,476,702

Amortization of Unfunded Liability as of July 1, 2015

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2005	ERI-Housing	7,992	4.50%	24	12,970	13
2006	ERI-City	164,100	4.50%	23	254,842	13
2016	Fresh Start	3,741,296	3.77%	21	3,741,296	21

<u>Notes on Amortization of Unfunded Liability</u>

Year is the year the amortization base was established.

Type is the reason for the creation of the base. Examples are Gain/(Loss) or Fresh Start.
Original Amortization Amount is the annual amortization amount when the base was established.
Percentage Increasing is the percentage that the Original Amortization Amount increases per year.
Original # of Years is the number of years over which the base is being amortized.
Current Amortization Amount is the amortization payment amount for this year.
Years Remaining is the number of years left to amortize the base.

*** Reflects the following deferred gains:**

2018: $4,596,277
2020: $2,170,851

Assumptions and Methodology Summary

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

Valuation Date	January 1, 2014 Valuation
Interest Rate	7.75% (same as prior valuation).
Salary Increase	4.00% Base rate plus 3% steps for 8 years (Base is reduced by .50% while receiving steps), Base rate reduced by 2% in 2014 and 2015
COLA	3% of $13,000
COLA Frequency	Granted every year
Mortality	RP-2000 Generational Mortality table with scale BB. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 Generational Mortality table with scale BB, ages set forward 2 years. (Prior valuation used RP2000 with 17 year projection using Scale AA.)
Overall Disability	Groups 1 and 2 45% ordinary disability 55% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2: Ages 55 – 70, Group 4: Ages 50 – 65 Post April 1, 2012 Hires: Groups 1 and 2: Ages 60 – 70, Group 4: Ages 50 – 65
Administrative Expense	$211,028 budget estimated for FY 2016 provided by Northampton Retirement Board.

Assets

a.	Cash	$	703,685.39
b.	Fixed Income		30,353,805.11
c.	Equities		67,826,475.00
d.	Pooled Alternative Investments		797,899.27
e.	Hedge Funds		845,190.12
f.	Sub-Total:	$	100,527,054.89
g.	Interest Due and Accrued		199,654.84
h.	Accounts Receivable		21,265.38
i.	Accounts Payable		(37,638.65)
j.	Sub-Total:	$	183,281.57
k.	Market Value of Assets [(f) + (j)]	$	100,710,336.46

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2013 (adjusted for payables and receivables) is $100,710,336.46.

- The asset allocation is approximately 31% fixed income, cash, receivables and payables and 69% equities, alternative investments, hedge funds and similar types of investments. Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6% to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25% to 9.00% for equities and 3.65 to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 7.75% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.

- Actuarial value of assets (AVA) of $93,943,208 is based on a four-year smoothing method. Investment gains or losses above or below the expected rate of investment return are recognized over 4 years, 25% per year. The AVA must be no more than 110% of the market value of assets and no less than 90% of the market value of assets.

- Future contributions will be affected by the deferred net gains. At the time of the next valuation, as of January 1, 2016, there will be $4,596,277 of net gains recognized. This and other existing unrecognized net gains and losses have been reflected in the funding schedule shown on page 11 of this report.

Calculation of Valuation Assets as of January 1, 2014

FOUR-YEAR ASSET SMOOTHING

1. Market value of assets including receivable/payable as of 01/01/2014 — $100,710,336

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2013	$8,683,404	75%	$6,512,553
b.	2012	$2,298,809	50%	$1,149,404
c.	2011	($3,579,316)	25%	($894,829)
d.	2010	$3,270,502	0%	$0
e.	2009	$5,415,781	0%	$0
f.	Total			$6,767,128

3. Valuation assets without corridor as of 01/01/2014 (1. - 2.f.) — $93,943,208

4. Corridor Check
   a. 90% of Market Value — $90,639,303
   b. 110% of Market Value — $110,781,370

5. Valuation assets with corridor as of 01/01/2014 3. within Corridor — $93,943,208

6. Calculation of return on valuation assets

   a. Valuation assets as of 01/01/2012 — $79,531,350

   b. ER contribs + EE contribs - Ben Pymts - Expenses — $(2,862,226)

   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $17,274,085

   d. Weighted value of valuation assets — $77,777,766

   e. Return on valuation assets 6.c. / 6.d. — 22.2%

   f. Annualized return on assets — 10.5%

Disclosure Information Under GASB Statement 25

SCHEDULES OF FUNDING PROGRESS
(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2014	$93,943	$149,021	$55,078	63%	$24,064	229%
1/1/2012	$79,531	$131,388	$51,856	61%	$23,889	217%
1/1/2010	$76,045	$116,637	$40,592	65%	$22,556	180%
1/1/2008	$71,799	$108,846	$37,046	66%	$21,754	170%
1/1/2007	$65,385	$101,978	$36,593	64%	$20,336	180%

NOTES TO SCHEDULES

Additional information as of the latest actuarial valuation follows:

Valuation Date	1/1/2014
Actuarial cost method	Entry Age Normal
Amortization method	Approximate level percent of payroll Closed
Remaining amortization period	21 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 4 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value. Market value of assets is $100,710,336
Actuarial assumptions:	
Investment Rate of Return	7.75% per year
Projected Salary Increases	4.00% Base rate plus 3% steps for 8 years (Base is reduced by .50% while receiving steps), Base rate reduced to 2.00% in 2014 and 2015

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2014

The normal cost for employees on that date was:	$2,127,234	8.8%	of payroll
The normal cost for the employer was:	$1,077,525	4.5%	of payroll

The actuarial liability for active members was:	$63,414,242
The actuarial liability for retired members was (includes inactives):	$85,606,576
Total actuarial accrued liability:	$149,020,818
System assets as of that date (market value of $100,710,336):	$93,943,208
Unfunded actuarial accrued liability:	$55,077,610

The ratio of system's assets to total actuarial liability was:	63%

As of that date the total covered employee payroll was:	$24,064,230

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	7.75% per annum
Rate of Salary Increase:	Select and ultimate rate (4.00% ultimate rate)

SCHEDULE OF FUNDING PROGRESS (Dollars in $000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2014	$93,943	$149,021	$55,078	63%	$24,064	229%
1/1/2012	$79,531	$131,388	$51,856	61%	$23,889	217%
1/1/2010	$76,045	$116,637	$40,592	65%	$22,556	180%
1/1/2008	$71,799	$108,846	$37,046	66%	$21,754	170%
1/1/2007	$65,385	$101,978	$36,593	64%	$20,336	180%

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.

Asset Valuation Method

Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and 100% for year four. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2016. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

ACTUARIAL ASSUMPTIONS

Investment Return

7.75% per year net of investment expenses.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

4.00% Base rate plus 3% steps for 8 years (Base is reduced by .50% while receiving steps),
Base rate reduced by 2% in 2014 and 2015.

Actuarial Methods and Assumptions
(Continued)

Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

Rate of Withdrawal

Service	Group 1 and 2	Group 4
0	15%	1.5%
1	12%	1.5%
2	10%	1.5%
3	9%	1.5%
4	8%	1.5%
5	7.6%	1.5%
10	5.4%	1.5%
15	3.3%	0.0%
20	2.0%	0.0%
25	1.0%	0.0%
30+	0.0%	0.0%

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

Rate of Disability

Age	Group 1 and 2	Group 4
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

Actuarial Methods and Assumptions
(Continued)

Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved 10 years of service:

Age	Group 1& 2 Male	Group 1 & 2 Female	Group 4	Hired after 4/1/2012 Group 1& 2 Male	Hired after 4/1/2012 Group 1 & 2 Female	Hired after 4/1/2012 Group 4
50	1%	1.5%	2%	0%	0%	1.5%
51	1%	1.5%	2%	0%	0%	1.5%
52	1%	2.0%	2%	0%	0%	1.5%
53	1%	2.5%	2%	0%	0%	1.5%
54	2%	2.5%	7.5%	0%	0%	5%
55	2%	5.5%	15%	0%	0%	10%
56	2.5%	6.5%	10%	0%	0%	7%
57	2.5%	6.5%	10%	0%	0%	20%
58	5%	6.5%	10%	0%	0%	10%
59	6.5%	6.5%	15%	0%	0%	15%
60	12%	5%	20%	25%	30%	20%
61	20%	13%	20%	20%	13%	20%
62	30%	15%	25%	30%	15%	25%
63	25%	12.5%	25%	25%	12.5%	25%
64	22%	18%	30%	22%	18%	30%
65	40%	15%	100%	40%	15%	100%
66	25%	20%	N/A	25%	20%	N/A
67	25%	20%	N/A	25%	20%	N/A
68	30%	25%	N/A	30%	25%	N/A
69	30%	20%	N/A	30%	20%	N/A
70	100%	100%	N/A	100%	100%	N/A

Mortality

The RP-2000 table (sex-distinct) projected with generational mortality and scale BB. (Prior valuation used RP-2000 mortality table with 17 year projection with Scale AA). During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used. In-service death is assumed to be 55% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

The RP-2000 table for healthy annuitants (sex-distinct) projected with generational mortality and scale BB, set-forward by 2 years. Death is assumed to be due to the same cause as the disability 40% of the time. (Prior valuation used RP-2000 mortality table with 17 year projection with Scale AA).

Actuarial Methods and Assumptions
(Continued)

Family Composition

Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).

Cost-of-Living Increases

A 3% COLA on the first $13,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $211,028 for the Fiscal Year 2016 excluding investment management fees and custodial fee is added to the Normal Cost.

Step Increases

Step increases are assumed to be part of the salary increase assumption.

Credited Service

All service is assumed to be due to employment with the municipality.

Contribution Timing

Contributions are assumed to be made August 1st of the fiscal year.

Total Payroll Increase

The total payroll is assumed to increase at 4.00% per year.

Valuation Date

January 1, 2014.

Summary of Principal Provisions

1. PARTICIPANT

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

- Group 1: general employees
- Group 2: employees in specified hazardous occupations (e.g., electricians)
- Group 4: police and firefighters

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members hired after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

Summary of Principal Provisions (Continued)

5. SERVICE RETIREMENT

a. Eligibility

1) For Group 1, 2 and 4 and hired pre-April 1, 2012: Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If a member of group 4, age 55 with no service requirement is also eligible for service retirement..

2) Hired after April 1, 2012: (Group 1 – Age 60, Group 2 – Age 55, Group 4 – Age 50) and completion of 10 years of service

b. Retirement Allowance

Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45
	Hired after April 1, 2012*		
2.5%	67+	62+	57+
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

*Reduction is .125% for each year early instead of .15% per year for employees with over 30 years of service.

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years

Summary of Principal Provisions (Continued)

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section above with the member eligible to start collecting a benefit at age 55, (or age 57 for post-April 1, 2012 hires) or defer until later at his or her discretion. If a member chooses, his or her contributions with interest may be withdrawn. The amount of interest he or she will receive depends on length of service and whether or not the termination of employment was voluntary.

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

Non-job related disability after completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section and calculated as if the member had attained age 55 (or age 57 for those hired after April 1, 2012), if younger. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

Disabled as a result of an accident in the performance of duties. No age or service requirement.

b. Retirement Allowance

72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

9. NON-OCCUPATIONAL DEATH

a. Eligibility

Dies while in active service, but not due to occupational injury. 2 years of service.

b. Retirement Allowance

Benefit as if Option C had been elected (see below) and member had attained age 55 (or age 57 for those hired after April 1, 2012) if younger. Minimum monthly benefits provided as follows:
spouse - $500, first child - $120, each additional child - $90

Summary of Principal Provisions (Continued)

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

72% of pay plus refund of annuity savings fund balance. In the case of an accidental disability retiree who dies of the same cause, the beneficiary receives 72% of the last 12 months salary or the current pension amount, whichever is greater.

11. COST-OF-LIVING INCREASES

An increase of up to 3% applied to the first $13,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A

Allowance payable monthly for the life of the member.

- Option B

Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.

- Option C

Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

Glossary of Terms

- Present Value of Benefits

  Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.

- Actuarial Cost Method

  The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.

- Actuarial Assumptions

Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.

- Actuarial Accrued Liability

The portion of the Present Value of Benefits that is attributable to past service.

- Normal Cost

The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.

- Actuarial Assets

Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and 100% for year four. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

- Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability not covered by System Assets.

- PERAC

Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.

- PRIT

Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.

- GASB

Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).